

SwitchPitch Los Angeles 2014

Transcript for the Boeing Presentation

Speaker 1: Thanks for the [inaudible] for the opportunity to be here. I hope that I'll mention to you, that there's something that'll interest some of you at least, and, and we can get together.

We could, we could spend a lot of time probably, days, literally, talking about the, the photos and designs that we would find all over to cover the last hundred years of flight. A lot of them are, are pretty interesting, some are, are, they seem pretty out there.

And, you know, anytime we talk about designing something new, we see a variety of opinions about what the priorities should be in the design. So, you've probably seen sketches like these. I'm in a structures group at Boeing, so I, I tend to like the one that talk about structures and stress up there. And, of course, we're all familiar with the, the typical things we see flying today; commercial aircraft, war planes, and even some specialty aircraft of today, and in the bygone era sadly, like the shuttle there.

It's, it's interesting when you think about how much sheet metal, and glue, and fasteners, and blood, and sweat, and tears have, have gone on into building prototype aircraft. People combine their, their knowledge of theories with instinct you know, gut feelings, and experiences, and even best practices to determine how an airplane structure should be built, and sometimes, the, the results are amazing. Sometimes, you see 'em out there, that they work. One thing's for sure though, that humans are great at taking our ideas, and making them into a reality.

I'd be shocked if anyone in this room didn't have this experience as a kid, and frankly, I'd be surprised if you didn't do it now, if you drive down the road with your window down. But, it's the young people who're the ones who are learning at incredible rate, and they're the ones that ask why when they experience something like this. And that experience can spur days, and months, years, or maybe even a lifetime of experimenting with that phenomenon they fell in love with when they first stuck their hand out the window, and then looked up and saw the airplane flying across the sky.

And so, that's what brings us to today. The Boeing Company would like some help developing a software tool, a game, a simulation, a tool to help both, capture the millions of people, and teach them the basics of airplane design and manufacture.

We see an issue to be addressed. See, there's a paradox in the aerospace industry, and that is, with today's powerful simulation our tools, and computational power in fact, at our fingertips but, also, the fingertips of kids and schools. It's possible to design a flying machine entirely using the computational power in these more assertive methods.

Now, you could do this without really ever understanding the fundamentals, or learning about design and the structures, and stresses that those structures may experience with flight. However, the aerospace industry actually needs a balance of the two. We need, we need the ability to handle

complexity through computation, and we need the ability to, to do that using a good understanding of the fundamentals. So, we're gonna make sure that our design, and manufacturing engineers use those powerful software tools by starting with that strong foundation.

And, that's where you come into play, and I mean play, literally. I don't need to talk you know, I don't really need to talk to anyone about the, what we see today with kids with their mobile devices, and their games on their mobile devices, and probably, most of you, if I asked will raise your hands if you've seen this game. It's one of my favorites, simple physics. It's an interactive learning game where you build superstructures using a fixed budget, and you work to a specific goal, and once you think your structure's ready, the game will actually test it in a fun way. For example, this was the lengthier version of the game, and the simulation I chose to show you is the snowy roof phase.

So, from an educational point of view, it's really, the thing that's real interesting here is, the fact that there's not just one solution, there are many solutions but, there may be an optimal solution. Many work and many don't. Some solutions are better because you could get more points for using less money to achieve the different goal, and so on. And, in this particular case, you could see there are three different ways of designing the [inaudible] structure, and then the bottom right is where the program is loading, [inaudible] in the games.

Another separate package called, X-Plane puts it this way; you can literally design an airplane, if that's what's it's called, and any other kind of flying device with any shape, and it will calculate how that plane would fly, using that shape, weight, and so on, that you applied to it.

So, our vision is a game that does similar but, it's for the basics of design manufacture of an aircraft. It will let the people see, and experience what the user might initially, mess around, and use that [inaudible] for making changes to the design, and eventually find that their intuition is based on what they're learning in the game.

Perhaps, there are different versions of the game. Perhaps, they allow the user to focus on the sections of the aircraft, or the whole aircraft. Perhaps, there's a fixed budget, and schedule, and perhaps, different aircrafts could be built depending on what the customer requirements are.

But, we envision some basic things as part of the tool. One, in their perfect solutions, many optimal ones, so there are probably, many paths to a solution, and that teaches the reality of when is good enough, good enough. To be able to learn from other successes will help you learn faster, and if you like simple physics the game can gradually introduce new concepts, so the experience is intuitive, and interactive, fun, and self-explanatory.

Perhaps, there's a team work capability, as well as the single user experience, the achievement of a personal high score solving the puzzle, unlocking new levels, all of those things we're use to seeing in games over the years, could still be a part of this one.

But, it's really the learning that's going on that Boeing's interested in. We envision young kids playing it, and learning the basics of flight, and maybe manufacturing, encouraging them to study further, and ask

more questions as their curiosity grows. And we envision high school students doing it to simulate design, and flight experiments. And actually, we envision college students using it to hone their technical skills, and design intuition, perhaps, even creating new designs that they can then prototype.

The desired result would be a stronger workforce with aerospace companies in the world, and a society that's more interested and capable in its knowledge of the design, and manufacturing of these amazing flying machines that they see drawing lines in the sky.

That's all. Thank you very much.

Hi.

Speaker 2: Hi. So, what's their budget that you, they put aside for this?

Speaker 1: it's tall [Laughs].

Speaker 2: And, is the app going to be for free, or [inaudible]?

Speaker 1: That's up to you generating the revenue stream. Again, my, my personal vision for this is that it's not a revenue stream for Boeing. Boeing invests money in our youth. So, I would, I would approach it, if I owned a small business in this room, I would approach it as Boeing is both the idea generator, the customer, and also perhaps, the capitol that you need to get going, and the supplier of the expertise. We don't buy your lunch. You've have to get that on your own.